

What is claimed is:

1. A method of manufacturing conductive composition precursor comprising:
  - 5 preparing one of solution composition in which soluble conductive polymer is dissolved, and dispersion composition in which conductive polymer particles are dispersed in a medium; and
  - 10 adding at least one of "one of phosphoric acid and phosphoric acid ester compounds", "one of phenol and phenol derivatives", "nitrobenzene derivatives", "alkyl naphthalene sulfonic acid anion", "fluorocarbon surface active agent" and "fluorocarbon surface active agent and binder" to one of said solution composition and said dispersion composition.
2. The method of manufacturing conductive composition precursor as defined in Claim 1, wherein said one of phosphoric acid and phosphoric acid ester compound has at least one active hydrogen.
3. The method of manufacturing conductive composition precursor as defined in Claim 1, wherein said phenol derivative has at least 20 one electron-attracting substitute group.
4. The method of manufacturing conductive composition precursor as defined in Claim 1, wherein said phenol derivative is one of nitro phenol and cyano phenol.

5. The method of manufacturing conductive composition precursor as defined in Claim 1, wherein said nitrobenzene derivative is one of nitro benzoic acid and nitro benzyl alcohol.

5                   6. The method of manufacturing conductive composition  
precursor as defined in Claim 1, wherein said fluorocarbon surface active  
agent has at least one perfluoro alkyl group.

7. The method of manufacturing conductive composition  
10 precursor as defined in Claim 1, wherein said fluorocarbon surface active agent is one of anionic, nonionic, amphoteric, and cationic surface active agents.

8. The method of manufacturing conductive composition  
15 precursor as defined in Claim 1, wherein said soluble conductive polymer and  
said conductive polymer particles is one of poly-pyrrole, poly-thiophene,  
poly-aniline, and their derivatives.

9. The method of manufacturing conductive composition  
20 precursor as defined in Claim 1, wherein said alkyl naphthalene sulfonic acid anion is included in one of free acid, sodium salt and ammonium salt thereof.

10. A method of manufacturing conductive composition comprising:  
25 removing medium from conductive composition precursor in  
which:

(A) one of a solution composition containing soluble conductive polymer and a dispersion composition containing conductive polymer particles; and

(B) at least one of "one of phosphoric acid and phosphoric acid ester compound", "one of phenol and phenol derivative", "nitrobenzene derivative", "alkyl naphthalene sulfonic acid anion", "fluorocarbon surface active agent" and "fluorocarbon surface active agent and binder" are dissolved or dispersed.

10            11. The method of manufacturing conductive composition as defined in Claim 10, wherein said one of phosphoric acid and phosphoric acid ester compound has at least one active hydrogen.

15            12. The method of manufacturing conductive composition as defined in Claim 10, wherein said phenol derivative has at least one electron-attracting substitute group.

20            13. The method of manufacturing conductive composition as defined in Claim 10, wherein said phenol derivative is one of nitro phenol and cyano phenol.

              14. The method of manufacturing conductive composition as defined in Claim 10, wherein said nitrobenzene derivative is one of nitro benzoic acid and nitro benzyl alcohol.

15. The method of manufacturing conductive composition as defined in Claim 10, wherein said fluorocarbon surface active agent has a perfluoro alkyl group.

5           16. The method of manufacturing conductive composition as defined in Claim 10, wherein said fluorocarbon surface active agent is one of anionic, nonionic, amphoteric, and cationic surface active agents.

10          17. The method of manufacturing conductive composition as defined in Claim 10, wherein said soluble conductive polymer and said conductive polymer particles is one of poly-pyrrole, poly-thiophene, poly-aniline, and their derivatives.

15          18. The method of manufacturing conductive composition as defined in Claim 10, wherein said alkyl naphthalene sulfonic acid anion is included in one of free acid, sodium salt and ammonium salt thereof.

19. A method of manufacturing a solid electrolytic capacitor comprising:

20          preparing a valve metal electrode on which an anodized layer is formed;

              preparing conductive composition precursor in which:

25          A) one of solution composition containing soluble conductive polymer and dispersion composition containing conductive polymer particles; and

B) at least one of "one of phosphoric acid and phosphoric acid ester compounds", "one of phenol and phenol derivative", "nitrobenzene derivatives", "alkyl naphthalene sulfonic acid anion", "fluorocarbon surface active agents" and "fluorocarbon surface active agent and binders" are  
5 dissolved or dispersed in a medium;

applying said conductive polymer precursor on said valve metal electrode; and

removing said medium from said conductive polymer precursor.

10 20. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said one of phosphoric acid and phosphoric acid ester compounds has at least one active hydrogen.

15 21. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said phenol derivatives have at least one electron-attracting substitute group.

20 22. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said phenol derivative is one of nitro phenol and cyano phenol.

23. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said nitrobenzene derivative is one of nitro benzoic acid and nitrobenzyl alcohol.

24. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said fluorocarbon surface active agent has a perfluoro alkyl group.

5           25. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said fluorocarbon surface active agent is one of anionic, nonionic, amphoteric, and cationic surface active agents.

10         26. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said soluble conductive polymer and said conductive polymer particles is one of poly-pyrrole, poly-thiophene, poly-aniline, and their derivatives.

15         27. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said alkyl naphthalene sulfonic acid anion is included in one of free acid, sodium salt and ammonium salt thereof.

20         28. The method of manufacturing a solid electrolytic capacitor as defined in Claim 19, wherein said valve metal is one of aluminum, tantalum, niobium, titanium, and zirconium.

29. A method of manufacturing a solid electrolytic capacitor comprising:

25         forming a dielectric layer by anodizing the surface of a valve metal using anodizing solution containing alkyl naphthalene sulfonic acid anion; and

forming a conductive polymer layer on said dielectric layer.

30. The method of manufacturing a solid electrolytic capacitor as defined in Claim 29 further comprising re-anodizing said dielectric layer  
5 on which said conductive polymer layer is formed.

31. The method for manufacturing a solid electrolytic capacitor as defined in Claim 29, wherein said alkyl naphthalene sulfonic acid anion is included in one of free acid, sodium salt and ammonium salt thereof.

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32. A solid electrolytic capacitor comprising:  
an positive electrode comprising a valve metal;  
an anodized layer formed on the surface of said positive  
electrode;

15 a negative electrode conductive layer comprising conductive  
polymer; and

a coupling agent layer and surface active agent layer between  
said anodized layer and said negative electrode conductive layer.

20 33. The solid electrolytic capacitor as defined in Claim 32,  
wherein said negative electrode conductive layer further contains a surface  
active agent.

34. The capacitor as defined in Claim 32, wherein said  
25 coupling agent is one of silane coupling agent, titanium coupling agent,  
borane coupling agent, and aluminum coupling agent.

35. The solid electrolytic capacitor as defined in Claim 32, wherein said surface active agent is at least one of anionic surface active agent and nonionic surface active agent.

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36. The solid electrolytic capacitor as defined in Claim 32 wherein said surface active agent has a hydrophobic group structured with fluorocarbon.

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37. The solid electrolytic capacitor as defined in Claim 32, wherein said valve metal is one of aluminum, tantalum, niobium, titanium, and zirconium.

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38. The solid electrolytic capacitor as defined in Claim 32, wherein said conductive polymer has one of pyrrole, thiophene, aniline, and their derivatives as a repeating unit.

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39. The solid electrolytic capacitor as defined in Claim 32, wherein said conductive polymer is one of 3,4-ethylene dioxy thiophene and sulfonated aniline.

40. A method of manufacturing a solid electrolytic capacitor comprising:

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forming an anodized layer on a valve metal;

forming a coupling agent layer on said anodized layer; and

forming a surface active agent layer and conductive polymer layer on said coupling agent layer.

41. The method of manufacturing a solid electrolytic capacitor  
5 as defined in Claim 40, wherein said forming said coupling agent layer includes a step of applying one of coupling agent and its solution to said anodized layer.

42. The method of manufacturing a solid electrolytic capacitor  
10 as defined in Claim 40, wherein said coupling agent is one of silane coupling agent, titanium coupling agent, borane coupling agent, and aluminum coupling agent.

43. The method of manufacturing a capacitor as defined in  
15 Claim 40, wherein said surface active agent layer and said conductive polymer layer are formed simultaneously by applying a medium, in which conductive polymer containing said surface active agent is dispersed or dissolved, to said coupling agent layer.

20 44. The method for manufacturing a capacitor as defined in  
Claim 43 further comprising a step of laminating said conductive polymer layer by in-situ polymerization using a medium containing monomer.

25 45. The method for manufacturing a capacitor as defined in  
Claim 43 further comprising a step of laminating said conductive polymer

layer by in-situ polymerization using a medium containing monomer and said surface active agent.

46. The method of manufacturing a solid electrolytic capacitor  
5 as defined in Claim 40, wherein said surface active agent is one of anionic  
surface active agent and nonionic surface active agent.

47. The method of manufacturing a solid electrolytic capacitor  
as defined in Claim 40, wherein said surface active agent has a hydrophobic  
10 group structured with fluorocarbon.

48. The method of manufacturing a solid electrolytic capacitor  
as defined in Claim 40, wherein said valve metal is one of aluminum,  
tantalum, niobium, titanium, and zirconium.

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49. The method of manufacturing a solid electrolytic capacitor  
as defined in Claim 40, wherein said conductive polymer has one of pyrrole,  
thiophene, aniline and their derivatives as a repeating unit.

20 50. The method of manufacturing a solid electrolytic capacitor  
as defined in Claim 49, wherein said thiophene derivative is 3,4-ethylene  
dioxy thiophene and said aniline derivative is sulfonated aniline.

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